

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 September 2002 (06.09.2002)

PCT

(10) International Publication Number
WO 02/069026 A3

(51) International Patent Classification⁷: **G02F 1/025**

Adrian, Petru [RO/GB]; 59 Runnymede, London SW19 2PG (GB).

(21) International Application Number: PCT/GB02/00779

(22) International Filing Date: 22 February 2002 (22.02.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0104384.3	22 February 2001 (22.02.2001)	GB
0106092.0	13 March 2001 (13.03.2001)	GB
0106338.7	14 March 2001 (14.03.2001)	GB
0107613.2	27 March 2001 (27.03.2001)	GB
0123245.3	27 September 2001 (27.09.2001)	GB

(74) Agents: **CLAYTON-HATHWAY, Anthony, Nicholas** et al.; Fry Heath & Spence, The Old College, 53 High Street, Horley, Surrey RH6 7BN (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

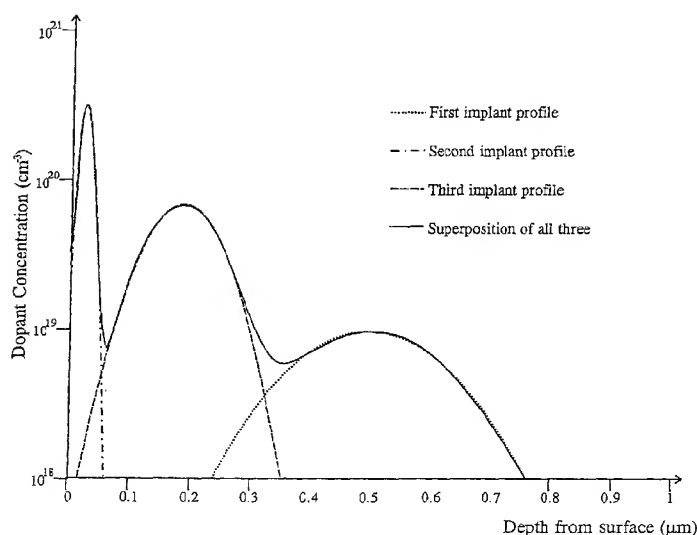
(71) Applicant (*for all designated States except US*):
BOOKHAM TECHNOLOGY PLC [GB/GB]; 90 Milton Park, Abingdon, Oxfordshire OX14 4RY (GB).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **VONSOVICI,**

[Continued on next page]

(54) Title: ELECTRO-OPTIC DEVICES



(57) Abstract: A method of manufacturing an electro-optic device is described, comprising the steps of applying to a semiconductor a first dose of a dopant impurity to a first depth, and further applying, by implantation, a second dose of dopant impurity at an energy sufficient to implant the dopant to a second depth, the second depth being greater than the first depth. Both doses can be applied by implantation. The second dose can thus extend to the insulating layer of an SOI structure whilst the first offers a good ohmic contact and increased lateral injection efficiency. A third dose of dopant impurity can be applied between the first and second. The application also relates to an electro-optic device comprising a doped region in which the concentration profile of dopant with depth comprises at least one point of inflexion, a minima, and/or a maxima between a pair of minima.



Published:

*with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

28 November 2002

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/00779

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02F1/025

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 G02F H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, IBM-TDB, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 10039 A (BOOKHAM TECHNOLOGY LTD) 24 February 2000 (2000-02-24) page 5, line 28 -page 6, line 21; figure 3 ---	18-22
X	US 4 844 572 A (POPOVIC RADIVOJE) 4 July 1989 (1989-07-04) column 5, line 50 -column 6, line 29; figures 1-3 ---	1
A	GB 2 339 919 A (BOOKHAM TECHNOLOGY LTD) 9 February 2000 (2000-02-09) page 4, paragraph 1; figure 1 --- -/--	1,2,7, 17,18

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

19 September 2002

Date of mailing of the international search report

14/10/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Stang, I

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/00779

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 012, no. 440 (E-684), 18 November 1988 (1988-11-18) -& JP 63 173367 A (CITIZEN WATCH CO LTD), 16 July 1988 (1988-07-16) abstract -----	1, 3, 4
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 07, 31 July 1996 (1996-07-31) -& JP 08 064794 A (SHARP CORP), 8 March 1996 (1996-03-08) abstract -& DATABASE WPI Week 199620 Derwent Publications Ltd., London, GB; AN 1996-194085 XP002214126 & JP 08 064794 A (SHARP CORP), 8 March 1996 (1996-03-08) abstract -----	1

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB 02/00779

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0010039	A	24-02-2000	GB 2340616 A AU 5182999 A CN 1323403 T EP 1125151 A1 WO 0010039 A1	23-02-2000 06-03-2000 21-11-2001 22-08-2001 24-02-2000
US 4844572	A	04-07-1989	CH 667155 A5 AT 81213 T DE 3875032 D1 EP 0303825 A1	15-09-1988 15-10-1992 05-11-1992 22-02-1989
GB 2339919	A	09-02-2000	AU 4522799 A CN 1309783 T EP 1099136 A1 WO 0004416 A1 JP 2002520676 T US 6278168 B1	07-02-2000 22-08-2001 16-05-2001 27-01-2000 09-07-2002 21-08-2001
JP 63173367	A	16-07-1988	NONE	
JP 08064794	A	08-03-1996	NONE	